

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
29 September 2005 (29.09.2005)

PCT

(10) International Publication Number
WO 2005/089770 A1

(51) International Patent Classification⁷: **A61K 31/5513**, C07D 243/24, A61P 31/12

(21) International Application Number:

PCT/GB2005/001023

(22) International Filing Date: 18 March 2005 (18.03.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0406280.8 19 March 2004 (19.03.2004) GB

(71) Applicant (for all designated States except US): **ARROW THERAPEUTICS LIMITED [GB/GB]**; Britania House, 7 Trinity Street, London SE1 1DA (GB).

(71) Applicant (for US only): **KELSEY, Richard [GB/GB]**; Arrow Therapeutics Limited, Britania House, 7 Trinity Street, London SE1 1DA (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DOWDELL, Verity [GB/GB]**; Arrow Therapeutics Limited, Britania House, 7 Trinity Street, London SE1 1DA (GB). **CARTER, Malcolm [GB/GB]**; Arrow Therapeutics Limited, Britania House, 7 Trinity Street, London SE1 1DA (GB). **ALBER,**

Dagmar [DE/GB]; Arrow Therapeutics Limited, Britania House, 7 Trinity Street, London SE1 1DA (GB). **HENDERSON, Elisa [GB/GB]**; Arrow Therapeutics Limited, Britania House, 7 Trinity Street, London SE1 1DA (GB).

(74) Agent: **SRINIVASAN, Ravi, Chandran; J.A. Kemp & CO**, 14 South Square, Gray's Inn, London WC1R 5JJ (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

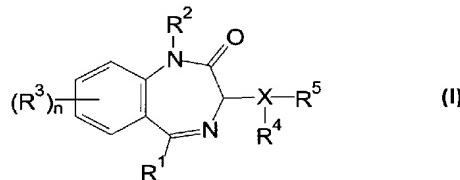
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: BENZODIAZEPINES FOR TREATING OR PREVENTING OR PREVENTING RSV INFECTION



WO 2005/089770 A1

(57) Abstract: Use of a compound which is (a) a benzodiazepine derivative of the formula (I) or an N-oxide thereof or (b) a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for use in treating or preventing an RSV infection wherein: - R¹ represents C₁₋₆ alkyl, aryl or heteroaryl; - R² represents hydrogen or C₁₋₆ alkyl; each R³ is the same or different and represents halogen, hydroxy, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkylthio, C₁₋₆ haloalkyl, C₁₋₆ haloalkoxy, amino, mono(C₁₋₆ alkyl)amino, di(C₁₋₆ alkyl)amino, *in vitro*, cyano, -CO₂R', -CONR'R'', -NH-CO-R', -S(O)R', -S(O)₂R', -NH-S(O)₂R', -S(O)NR' R'' or -S(O)₂NR'R'', wherein each R' and R'' is the same or different and represents hydrogen or C₁₋₆ alkyl; n is from 0 to 3; R⁴ represents hydrogen or C₁₋₆ alkyl; X represents -CO-, -CO-NR'-, -S(O)- or -S(O)₂-; wherein R' is hydrogen or a C_{1-C₆} alkyl group; and R⁵ represents a heteroaryl or heterocyclyl group which is substituted by a C_{1-C₆} hydroxyalkyl group or a -(C_{1-C₄} alkyl)-X₁-(C_{1-C₄} alkyl)-X₂-(C_{1-C₄} alkyl) group, wherein X₁ represents -O-, -S- or -NR'-, wherein R' represents H or a C_{1-C₄} alkyl group and X₂ represents -CO-, -SO- or -SO₂-; or R₅ represents -A₁-Y-A₂, wherein: - A₁ is an aryl, heteroaryl, carbocyclyl or heterocyclyl group; - A₂ is an aryl, heteroaryl, carbocyclyl or heterocyclyl group; - S(O)₂-, -CO-, -O-, -S- or -NR'-moiety, wherein R' is a C_{1-C₆} alkyl group; and - A₂ is an aryl, heteroaryl, carbocyclyl or heterocyclyl group.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.